other necessaries could be conveyed. Now, by Masai Land it is all but certain that camels could be utilised, and these animals could find their own provender. With 30 or 40 camels and 60 donkeys, very substantial relief could be taken to Emin Pasha. Indeed, the whole route, at least to the borders of Emin Pasha's province, is so comparatively level that Cape wagons could be taken, though in such an expedition it would not be advisable to try the experiment. The important thing is that there should be no further delay in starting at least one expedition, whoever the leader is to be.

Mr. Stanley was to arrive at Southampton yesterday, and we may be sure that if there is any delay in getting an expedition under way he will not be to blame.

NOTES

ON the 15th inst. a meeting was held of the Association for Promoting a Teaching University for London, when the Committee presented their second report. At a meeting held in December 1885, the Committee were instructed to open communications with the governing bodies of the University of London, University College, King's College, the Royal College of Physicians of London, the Royal College of Surgeons of England, and the various Medical Schools of London, as well as with the Council of Legal Education, for the purpose of promoting the objects of the Association on the basis of that report. The Committee have been informed by the Senate of the University of London and by the Councils of University College and King's College, that committees of those bodies had been appointed to consider the objects and proposals of the Association. The Council of King's College have adopted a resolution to the effect that "the Council, while reserving their opinion as to the details of the scheme laid before them by your Committee, approve generally of the objects which the Association has in view." The subject having been brought before the Council of University College, they adopted a resolution to the following effect:—"That this Council do express a general approval of the objects of the Association, which are as follows:—(1) The organisation of University teaching in and for London, in the form of a teaching University, with Faculties of Arts, Science, Medicine, and Laws; (2) the association of University examination with University teaching, and direction of both by the same authorities; (3) the conferring of a substantive voice in the government of the University upon those engaged in the work of University teaching and examination; (4) existing institutions in London, of University rank, not to be abolished or ignored, but to be taken as the bases or component parts of the University, and either partially or completely incorporated, with the minimum of internal change; (5) an alliance to be established between the University and the Professional Corporations, the Council of Legal Education as representing the Inns of Court, and the Royal Colleges of Physicians and of Surgeons of London." A conference between the deputation of the Committee named in that behalf and the Committee of the Senate of the University of London was held on November 23 at the University of London; and, at the conclusion of a long and important discussion, the Vice-Chancellor gave to the deputation the assurance that the general disposition of those present was to move in the direction indicated by the Association. Various other institutions have virtually expressed approval of the object of the Association, and, while awaiting some further communication from the Senate of the University of London, which it is understood will be made, either to them, or in an independent way to the University teachers of London, the Committee propose to take steps for bringing to the notice of Her Majesty's Government the need which exists for the co-operation of the Government and of the Legislature, in order to place University teaching in London on a more satisfactory basis.

IN connection with the report referred to above, the *University College Gazette* of December 17 contains a long article sketching briefly the career of University College, and alluding specially to the results of its severance from the University. The University, the article maintains, has carried out with great success, and to the great benefit of many workers, its design of a testing machinery that should enable it to throw its degrees open to all the world, without restrictions of any sort. It has grown to be a great Imperial University. Whatever faults there may be in its imperial system are of a kind to be corrected in the ordinary course of administration as time proves the need. On the side of the University of London, there is leisure now to go back to the point of separation from the Colleges, and having done one part of its work well, see that it does not leave the other undone. On the side of the Colleges, and of London itself, there is now a determination that the chief city of the world, abounding in the best elements of a true University life, shall not remain without a teaching University. The first aim of University College, the article goes on to say, is to form an alliance with the present University, by large expansion of its powers. "The desired work can be done so much more thoroughly by the University in concert with the College, and the issues are so important for their influence on the London of the future, that, if the result of the present deliberations at the London University were but faintly satisfactory, effort towards united action should be steadily continued by our College. Not until it has been proved (apart from rash assumption) that the desired concert cannot be obtained, should we consider that the time had come for advancing our next line of battle. Then it must be our resolve to apply all our powers to the creation of a separate teaching University in London; to the resuming of our first battle, and recovering for University College the position it gave up on conditions that are no longer fulfilled. King's College will join forces with us, but with or without allies we must press on to victory, and in this form of the battle, should we be forced to it, we depend on ourselves; we shall have public feeling with us, and the fault will be ours if we fail."

THE death is announced, on Friday last, of Sir Douglas Forsyth, at the age of fifty-nine years. He will be best known to science as the leader of the mission to Kashgar, the report on which, only recently completed, forms so valuable a contribution to the natural history of Central Asia.

IT is evident that at Rodriguez, a small dependency of Mauritius, the indigenous plants are threatened with extinction from an enemy of a peculiar character. In the Annual Report of the Acting Civil Commissioner on Crown Lands and Forests for 1885 it is stated:—"In my report for the year 1884, I pointed out the existence of a kind of white lice, commonly called here 'cochenille,' which had in a very short time multiplied enormously, and threatened to destroy the forests of Rodriguez. During the year 1885 matters looked more alarming still. It was reported to me that these insects had begun to attack the maize, manioc, and bean plantations: I myself while visiting the mountain ascertained the correctness of the report. However the bean harvest had not been bad, and the inhabitants had not to suffer from any scarcity of food. As regards the citron, lemon, and orange trees, for which this island has long been famous, hundreds of them have been killed by these insects. The mango and cocoanut trees felt their baneful influence, and yielded sour and unsavoury fruits. One of the best forest trees which grow here, the 'Bois puant' (*Fœtidia mauritiana*), seems unable to resist their attack, and I am afraid that there will not be one of these trees left within a twelvemonth, unless, by some happy circumstance, these insects were to disappear altogether." We learn from Kew that the interesting indigenous tree, whose complete extinction within twelve months is here anticipated, is very rare in Mauritius, and unless steps are taken to preserve it at Rodriguez, it will probably disappear altogether as a forest tree from the flora of these islands.

A MEETING of students anxious to form a Biological Society in connection with University College, London, was held on Monday, the 13th, in the Zoological Theatre, Prof. Lankester in the chair. The provisional Committee appointed at the first meeting submitted to the Society the rules they had drawn up, which after some discussion were passed with slight amendments, and sent up to the Council for approval. Many lady-students were present at this meeting, and so strong is the wish on all sides that they may be admitted to the Society, especially as the classes of Botany and Zoology have been thrown open to them, that two lady-students were put up as candidates for the Committee, and only missed election by a few votes.

AT a meeting of biologists held in the Natural History laboratory, University College, Liverpool, on Saturday, December 11, it was resolved to found a Biological Society in Liverpool, to have for its object the study and advancement of zoology, botany, palæontology, anatomy, physiology, and embryology, and the publication of papers of scientific value on any or all of these subjects. The following gentlemen were elected as office-bearers for the ensuing year:—President: Prof. W. Mitchell Banks, M.D., F.R.C.S.; Vice-Presidents: James Poole, J.P., Mayor of Liverpool, and Prof. W. A. Herdman, D.Sc., F.R.S.E.; Treasurer: J. C. Thompson, F.R.M.S.; Secretary: R. J. Harvey Gibson, M.A., F.R.S.E. It was decided to hold the first meeting of the Society at University College on Saturday, January 15, 1887, when the work of the Society will be initiated by the delivery of an inaugural address.

DURING a recent voyage of the U.S.S. *Juniata* to South America, observations were made as to the height and length of waves, with the following result, as reported by Commander Davis: height of wave from hollow to crest, 25 feet; length from crest to crest, 375 feet; wave-period, 7·5 seconds. The wind-velocity at the time was 10 miles per hour. The height of wave was measured by the elevation at which an observer could see over the crest when the ship was in the hollow. The wave-period was estimated by counting the average number of waves per minute. The wave-length was determined by the time occupied by the crest in passing a measured portion of the vessel's length.

IT IS stated that the task of working up the materials collected by the survey parties of the Afghan Boundary Commission during the past two years into a regular series of maps has been undertaken by Capt. Gore, R.E., and that it will be carried out at Dehra Dun.

HIGHER mathematics in its applications to social problems is the subject dealt with in a new Vienna journal, *Die Controle*, which is edited by the mathematician, Dr. Grossmann. In an appendix, entitled "Die Mathematik im Dienste der National-œkonomie," questions of national economy are treated on a mathematical basis.

PROF. DEWAR'S course of six lectures on the Chemistry of Light and Photography (adapted to a juvenile auditory) which begin on Tuesday next (December 28) at the Royal Institution will be very fully illustrated. Arrangements have been made for the introduction of a powerful beam of electric light, equal in intensity to a sunbeam, into the theatre, for photographic experiments. Many improvements have been made in the warming, lighting, and ventilation of the theatre during the autumn recess.

THE last mail from Singapore brings news of the death there, on November 29, of Mr. William Cameron, explorer and geologist to the Government of the Straits Settlements, at the age of fifty-three. Mr. Cameron, after an eventful life in England and Australia, settled down in the Straits Settlements, where his practical knowledge of mineralogy and geology, combined with his love of exploration, procured him several appointments. Lately he had been employed by the Colonial Government in exploring and mapping out the unknown parts of the Native States, and he received the title of Government Explorer and Geologist. The production of one of his maps of these States has recently been noticed in these columns. He was well known throughout the Native States, especially amongst the Malays and Sakies, of whose language and customs he is said to have had a most accurate knowledge, and over whom he had great influence.

ON December 18 the fine new Ethnological Museum at Berlin was ceremoniously opened by the Crown Prince, who was accompanied by the Princess. The Museum, which is a very fine large building, contains collections from all parts of the world, including the antiquities dug up by Dr. Schliemann at Ilion. Herr Gossler, the Minister of Public Worship, read an address on the nature and objects of the institution, and the Crown Prince in replying referred among other things to the benefits which had accrued to the Museum from the colonial expansion of the Empire.

AT the last meeting of the Paris Geographical Society, M. de Lesseps was in the chair. After having heard an account of an exploration in the Panama Isthmus by M. Désiré Charnay, the Chairman spoke about the canal. He said that, if necessary, sluices should be constructed, so that the canal should be opened at any price in 1889. Ulterior steps should be taken for dispensing with them.

WE have received the report of the Leicester Literary and Philosophical Society for the past year, and also the first number of the new quarterly series of the *Transactions*. The reports from the various sections contained in the former are in all respects but one eminently satisfactory, as they show great activity and excellent work. The exception is Section B, for astronomy, physics, and chemistry, in respect to which it is stated that there is "a lack of interest in Leicester in physical science, especially when real work is to be done." Indeed, it has become a question whether the Council should not be asked to terminate the existence of the section; but "the Council express a hope that the section may live through its time of depression, and, when the interest in physical science has revived, may regain its vigour." We are glad to observe that the botanical sub-committee, who have undertaken and are now editing a work on the flora of Leicestershire, have nearly completed the printing of the book, and hope to be able shortly to announce its publication. The *Transactions* will in future be published quarterly, in place of annually with the Council's report. Of the first quarterly number of the *Transactions* little need be said. It speaks well for the prosperity of the Society that the annual publication no longer supplies its requirements, and the high standard of the papers read is shown by the fact that a number of them have been published by scientific periodicals of repute. The papers now published deal mainly with scientific subjects connected with Leicestershire, such as the Campanulas of that county, the Lower Lias and Rhætics in the Spinney Hills, Leicester, &c. Special mention should be made of a very interesting chart by Mr. Montagu Browne, giving the dates of arrival of summer birds of passage in Leicestershire, from 1843 to 1855, and from 1877 to 1886.

WE understand that Mr. H. S. Vines is intending entirely to re-cast and almost re-write his edition of Prof. Prantl's "Elementary Text-Book of Botany," and that his new work may be expected from Messrs. Swan Sonnenschein and Co. in the course of next year. In the meantime the publishers are re-issuing the existing book without alteration.

In the annual report of the Leyden Museum for the year ending September 1, 1886, Dr. Jentink, the Director of the Museum and the successor of Prof. Schlegel, is able to report substantial progress with the zoological collections, the most noticeable additions being an egg of *Æpyornis maximus* and a skeleton of *Echidna bruijnii*. Considerable series of animals of all classes have been added to the Museum from the travels of Mr. Stampfli in Liberia and Mr. Van der Kellen in Benguela.

According to the *Colonies and India*, the last experiment in sending salmon-ova to the antipodes appears to have been a great success. In January 1885, a shipment of eggs was made by Mr. James Youl, by desire of the Tasmanian Government, and the bulk of the eggs reached the colony in good condition, development of the embryo having been suspended by means of Haslam's refrigerating machinery. The eggs have developed into "fry," and the "fry" into "smolts," for several young salmon about 8 inches long have been captured accidentally in the Tasmanian Mersey.

The same journal states that a Mining Institute has been successfully launched at Sydney, with a programme of future work calculated to increase the welfare of the mining industry.

In the Reingraben slate of Polzberg, near Lunz (Austria), among other fossils a well-preserved skull of Ceratodus has been found. Two years ago a flat-pressed vertebral column was found in the same place, which seems to have belonged to the same animal.

The additions to the Zoological Society's Gardens during the past week include a Red-handed Tamarin (*Midas rufimanus* ♀) from Surinam, a Mauge's Dasyure (*Dasyurus maugæi*) from Australia, presented by Mr. Robert J. Hamilton; two Collared Peccaries (*Dicotyles tajaçu*) from South America, presented by Mr. Thomas Bell; two Peafowls (*Pavo cristatus* ♂ ♀) from India, presented by Mr. Richard Hunter; two Indian Crows (*Corvus splendens*) from India, presented by Lord Lilford, F.Z.S.; a Yarrell's Curassow (*Crax carunculata*) from South-East Brazil, a Razor-billed Curassow (*Mitua tuberosa*) from Guiana, a Red-billed Tree Duck (*Dendrocygna autumnalis*) from America, two White-faced Tree Ducks (*Dendrocygna viduata*) from Brazil, presented by the Rev. W. Bramley Moore; four Herring Gulls (*Larus argentatus*), British, presented by Capt. S. T. Sargent; six Spectacled Salamanders (*Salamandrina perspicillata*) from Italy, presented by Prof. H. H. Giglioli, C.M.Z.S.; a Macaque Monkey (*Macacus cynomolgus*), an Isabelline Bear (*Ursus isabellinus* ♂) from India, deposited.

OUR ASTRONOMICAL COLUMN

Barnard's Comet.—This comet has become an exceedingly interesting object, of no small beauty and brightness. Prof. Cacciatore, Director of the Palermo Observatory, in a letter appearing in the *Giornale di Sicilia* of December 1, speaks of it as visible to the naked eye. He says:—"Its head shines as a star of the fifth magnitude, and is accompanied by two tails, the one directed to the north-west, of a length of about a degree and a half, and the other to the west, about half a degree in length." But few observations would seem to have been made of the comet in this country, when the comparative brilliancy of the object is borne in mind; still, several English observers have called attention to the second tail. One observer speaks of the brighter tail as being, on December 9, more than 10° in length, and visible to the naked eye; the second tail, which was inclined at an angle of 40° to the other, was much fainter and shorter, and required an aperture of about 2 inches to show it well. The comet is now receding rapidly both from the earth and sun, and as its declination is diminishing, it will soon be lost to English observers.

Rotation-Time of the Red Spot on Jupiter.—Prof. Young, in the December number of the *Sidereal Messenger*, gives a fresh determination of the rotation-period of the great red spot on Jupiter. The determination rests upon eight observations made in the spring of the present year, and the rotation-period deduced is 9h. 55m. 40·7s. ± 0·2s.; the probable error of a single observation being ± 44s. This rotation-period shows that the gradual retardation of the period still persists, the following having been the values deduced in former years:—

			h.	m.	s.
In 1879	Mr. Pratt	made the period	9	55	34·9
1880–81	Mr. Hough	,,			37·2
1882–83	,,	,,			38·4
1883–84	,,	,,			38·5
1884–85	,,	,,			40·1

Prof. Young remarked the apparent overlapping of the southern belt and the red spot which took place towards the end of March and the beginning of April, and which was observed by many English observers (*Observatory*, May 1886, p. 188); but, whilst admitting that it was impossible to say which was uppermost, Prof. Young was inclined, in opposition to Mr. Denning's view, to believe the red spot to be the lower. Mr. Denning has pointed out that the apparent partial coalescence of the two markings was simply due to an arm of the southern belt overtaking the red spot, the former having a rotation-period shorter by about 19s. than the latter. Prof. Young observed a white spot in a yet higher latitude than this part of the southern belt, and deduced a period of rotation for it of 9h. 55m. 11·14s. It would thus appear that the red spot moves more slowly than the markings on either side of it, to the south as well as to the north.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1886 DECEMBER 26—1887 JANUARY 1

(For the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on December 26

Sun rises, 8h. 7m.; souths, 12h. 0m. 51·4s.; sets, 15h. 54m.; decl. on meridian, 23° 22′ S.: Sidereal Time at Sunset, 22h. 14m.

Moon (one day after New) rises, 8h. 32m.; souths, 12h. 56m.; sets, 17h. 22m.; decl. on meridian, 18° 54′ S.

Planet	Rises	Souths	Sets	Decl. on meridian
	h. m.	h. m.	h. m.	° ′
Mercury ...	... 6 18	... 10 28	... 14 38	... 20 50 S.
Venus ...	... 8 35	... 12 25	... 16 15	... 23 49 S.
Mars ...	... 9 47	... 13 57	... 18 7	... 20 55 S.
Jupiter ...	... 2 32	... 7 40	... 12 48	... 10 52 S.
Saturn ...	... 17 6*	... 1 10	... 9 14	... 21 44 N.

* Indicates that the rising is that of the preceding evening.

Variable Stars

Star	R.A. (1887·0)	Decl. (1887·0)		
	h. m.	° ′		h. m.
U Cephei ...	.. 0 52·3	... 81 16 N.	... Dec. 28,	0 24 *m*
Algol ...	... 3 0·8	... 40 31 N.	... ,, 27,	0 58 *m*
			,, 29,	21 47 *m*
λ Tauri ...	... 3 54·6	... 12 10 N.	... ,, 28,	4 27 *m*
			Jan. 1,	3 19 *m*
δ Libræ ...	... 14 54·9	... 8 4 S.	... Dec. 27,	20 7 *m*
			,, 30,	3 58 *m*
U Coronæ ...	... 15 13·6	... 32 4 N.	... ,, 27,	17 40 *m*
			,, 31,	4 31 *m*
R Serpentis ...	... 15 45·5	... 15 29 N.	... ,, 29,	*M*
β Lyræ ...	... 18 45·9	... 33 14 N.	... ,, 28,	0 0 m_2
			,, 31,	5 0 *M*
R Lyræ ...	... 18 51·9	... 43 48 N.	... ,, 29,	*m*
δ Cephei ...	... 22 25·0	... 57 50 N.	... ,, 26,	21 30 *m*

M signifies maximum; *m* minimum; m_2 secondary minimum.

Meteor-Showers

On December 30 and 31 slow bright meteors fall from a radiant near 2 Lyncis, R.A. 92°, Decl. 57° N. Other showers of the season radiate from near ζ Ursæ Majoris, R.A. 201°, Decl. 57° N., and from near β Bootis, R.A. 221°, Decl. 41° N.